

REMARKS/ARGUMENTS

Upon entry of the instant amendment, claims 1-20 are pending. Claims 4, 8-10, 14 and 18-20 have been allowed. Claims 1, 3, 4, 5, 7, 8, 11, 13, 14 and 15 have been amended to more particularly point out the Applicants' invention. It is respectfully submitted that upon entry of the instant amendment and consideration of the remarks below, the application is in condition for allowance.

Claim Rejections - 35 U.S.C. §112:

Claim 3 has been rejected under 35 U.S.C. §112, second paragraph, for being indefinite. The basis of this rejection relates to the phrase "a predetermined training sequence". Claim 3 has been amended to resolve this issue. In particular, claim 3 now recites a predetermined training sequence modulated and transmitted. The claim also recites that the transmitted signals are decoded and compared with the predetermined training sequence. (i.e. the actual training sequence.) It is respectfully submitted that claim 3, as amended, should overcome the rejection under 35 U.S.C. §112. Accordingly, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Claim Rejections – 35 U.S.C. §102(b):

Claims 1, 2, 5, 6, 11, 12, 15 and 16 have been rejected under 35 U.S.C. §102(b) as being anticipated by *Barabash et al.* U.S. patent no. 5,640,417. In order for there to be anticipation, each and every one of the elements of the claims must be found in a single reference. It is respectfully submitted that the claims, as amended, recite subject matter clearly not disclosed or suggested by the *Barabash et al.* patent. In particular, these claims now recite elements relating to determination of the *actual* distance between received symbols and adjusting the initial decision boundaries as a function of the *actual* distance.

As set forth in column 6, lines 66 through column 7, line 8 of the *Barabash et al.* patent, the computations are based on a predetermined radius X. The radius X is selected to optimize

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the probability of discriminating between one innermost symbol and three outermost symbols in a constellation.

The radius X is based on not actual distances unlike the system recited in the claims at issue ("As such, radius X is preferably a variable which depends upon an estimated received signal variance. To set the value X, the cellular modem 20 periodically estimates the probability distribution function for the normalized magnitude of the outermost symbol [1], for example, by determining an average sample magnitude and variance for this average sample magnitude. These, in turn, are used to set the radius X such that the probability of correctly discriminating between the innermost and the outermost symbols is maximized".) *Barabash et al.*, column 6, lines 66 through column 7, line 8.

As further stated in column 7 of the *Barabash et al.* patent, lines 26-39, the radius X is selected based on a probabilistic function; clearly not the actual distances between the symbols. Thus, there can be no anticipation. Accordingly, the Examiner is respectfully requested to reconsider and withdraw this rejection.

Claim Rejections – 35 U.S.C. §103:

Claims 3, 7, 13 and 17 have been rejected under 35 U.S.C. §103 as being unpatentable over *Barabash et al.* and further in view of *Sotome et al.* U.S. patent no. 5,761,216. The *Barabash et al.* U.S. patent has been discussed above and discloses a computation intensive method for dusting the initial decision boundaries. The invention recited in the claims at issue, on the other hand, is much simpler and simply requires the computation of the distance between the symbols and adjustment of the decision boundaries based on that distance. Accordingly, the Applicants respectfully disagree with the assertion in paragraph 5 of the Detailed Action that *Barabash et al.* discloses all of the subject matter claimed except for "a symbol error counter for comparing said decoded signals to a predetermined training sequence to further improve the bit error rate".

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The *Sorome et al.* patent was cited for teaching an error counter that counts errors by comparing a signal to be measured with a reference pattern. The *Sorome et al.* patent does not otherwise disclose a system for adjusting the decision boundaries based on computation of the actual distances between received symbols. For all of the above reasons, the Examiner is respectfully requested to reconsider and withdraw this rejection.


CONCLUSION

An earnest attempt has been made to address all of the issues in the Official Action. An early allowance is thus earnestly solicited.

Respectfully submitted,

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